

TABLE 4.15
LOWER ADJACENT CHANNEL
COLOR SUBCARRIER REJECTION
TEST RESULTS

VIDEO CASSETTE RECORDERS

SAMPLE NO.	CHANNEL 3		CHANNEL 12		CHANNEL 53		CHANNEL 74	
	REJ.	D/U	REJ.	D/U	REJ.	D/U	REJ.	D/U
101	46.6	58.6	44.2	56.2	45.8	57.8	46.1	58.1
102	46.6	58.6	44.2	56.2	47.8	59.8	42.1	54.1
103	> 55.6	> 67.6	> 60.2	> 72.2	> 61.3	> 73.3	> 59.1	> 71.1
104	48.6	60.6	46.2	58.2	50.8	62.8	50.6	62.6
105	49.6	61.6	47.2	59.2	46.8	58.8	48.1	60.1
106	47.1	59.1	43.2	55.2	43.8	55.8	42.1	54.1
107	50.6	62.6	50.2	62.2	51.3	63.3	45.6	57.6
108	39.6	51.6	37.7	49.7	36.8	48.8	37.6	49.6

NOTE: A "greater than" symbol (>) indicates rejection or D/U ratio is greater than the value to the right of the symbol.


 Level exceeds "just perceptible" interference threshold.

TABLE 4.16
LOWER ADJACENT CHANNEL
COLOR SUBCARRIER REJECTION
TEST RESULTS

CABLE CONVERTERS

SAMPLE NO.	CHANNEL 3		CHANNEL 12		CHANNEL 53		CHANNEL 74	
	REJ.	D/U	REJ.	D/U	REJ.	D/U	REJ.	D/U
201	> 56.6	> 68.6	> 59.2	> 71.2	> 56.3	> 68.3	> 56.1	> 68.1
203	48.1	60.1	48.2	60.2	48.8	60.8	*	*
204	> 58.6	> 70.6	> 57.7	> 69.7	> 59.8	> 71.8	*	*
206	> 49.6	> 61.6	> 56.2	> 68.2	> 56.8	> 68.8	> 56.1	> 68.1
208	58.6	70.6	56.7	68.7	*	*	*	*
209	45.2	57.2	45.7	57.7	47.8	59.8	47.6	59.6
212	> 58.6	> 70.6	> 58.2	> 70.2	> 56.8	> 68.8	> 57.1	> 69.1
214	> 56.6	> 68.6	> 57.7	> 69.7	> 59.8	> 71.8	> 59.1	> 71.1
216	> 62.6	> 74.6	> 59.2	> 71.2	> 62.8	> 74.8	> 62.1	> 74.1
218	> 60.1	> 72.1	> 59.2	> 71.2	> 59.8	> 71.8	> 59.1	> 71.1
220	> 61.2	> 73.2	> 60.7	> 72.7	> 60.8	> 72.8	> 60.1	> 72.1
222	> 58.6	> 70.6	59.7	71.7	> 58.8	> 70.8	59.1	71.1
224	> 61.6	> 73.6	> 61.2	> 73.2	> 56.3	> 68.3	*	*

NOTE: A "greater than" symbol (>) indicates rejection or D/U ratio is greater than the value to the right of the symbol.

* Test sample did not tune to this channel.

The average television receiver rejection to the lower adjacent channel color subcarrier was found to be 53.5 dB¹. There was little or no variation in receiver rejection performance with frequency.

The VCR test results, presented in Table 4.15, show that three of the eight VCR's tested exhibited interference levels greater than the "just perceptible" interference threshold on at least one channel. Average rejection in VCR's was found to be 49.5 dB¹, or 4.0 dB less than the average television receiver rejection.

The cable converter test results for lower adjacent color subcarrier rejection are presented in Table 4.16. None of the cable converters exhibited interference levels greater than the "just perceptible" interference threshold. In most cases, the resultant baseband interference signal level was below the noise floor of the EUT. For this reason, no average rejection value is calculated for cable converters.

4.5.6.2 Lower Adjacent Channel Aural Carrier Test Results

Lower adjacent channel aural carrier rejection tests were performed with the desired video carrier level set to +10 dBmV and the lower adjacent aural carrier level set to +3 dBmV. The desired channel aural carrier level was set to 0 dBmV. Tables 4.17, 4.18, and 4.19 present the measured rejection and resultant equivalent D/U ratios for the lower adjacent aural carrier rejection performance tests.

Table 4.17 indicates that ten television receivers experienced "just perceptible" or greater interference when subjected to the maximum allowable lower adjacent channel aural carrier level. The average receiver rejection to the lower adjacent aural carrier was found to be 57.6 dB¹. There was a slight reduction in rejection performance with increasing frequency.

The worst interference level produced in a television receiver was 7.0 dB greater than the "just perceptible" threshold. Generally, the resultant D/U ratios for television receivers in this performance category were greater than 60 dB.

¹The average rejection value may be understated due to the fact that in certain receivers, the resultant baseband interference signal was below the noise floor of the EUT. In this case, a rejection value corresponding to an interfering signal equal to the noise floor of the EUT was used in the calculation of the average rejection.

TABLE 4.17
LOWER ADJACENT CHANNEL
AURAL CARRIER REJECTION
TEST RESULTS

TELEVISION RECEIVERS

SAMPLE NO.	CHANNEL 3		CHANNEL 12		CHANNEL 53		CHANNEL 74	
	REJ.	D/U	REJ.	D/U	REJ.	D/U	REJ.	D/U
001	> 65.3	> 72.3	69.4	76.4	58.5	65.5	> 60.3	> 67.3
002	48.3	55.3	48.4	55.4	45.8	52.8	47.3	54.3
003	> 68.7	> 75.7	68.4	75.4	66.0	73.0	68.8	75.8
004	61.8	68.8	62.9	69.9	61.3	68.3	*	*
005	> 68.8	> 75.8	61.4	68.4	58.5	65.5	61.8	68.8
006	45.8	52.8	46.4	53.4	45.0	52.0	43.8	50.8
007	55.8	62.8	55.4	62.4	57.0	64.0	57.8	64.8
008	58.3	65.3	56.6	63.6	59.5	66.5	58.3	65.3
009	63.8	70.8	57.9	64.9	56.0	63.0	59.8	66.8
010	63.8	70.8	55.4	62.4	56.5	63.5	59.8	66.8
011	43.8	50.8	63.4	70.4	65.0	72.0	64.8	71.8
012	56.8	63.8	57.4	64.4	56.5	63.5	56.8	63.8
013	59.3	66.3	54.4	61.4	51.5	58.5	56.8	63.8
014	42.8	49.8	41.9	48.9	41.0	48.0	41.8	48.8
015	55.3	62.3	53.4	60.4	53.0	60.0	54.8	61.8
016	44.8	51.8	45.4	52.4	44.0	51.0	44.8	51.8
017	56.8	63.8	55.4	62.4	45.5	52.5	47.3	54.3
018	58.3	65.3	54.9	61.9	57.5	64.5	58.3	65.3
019	42.8	49.8	41.9	48.9	46.5	53.5	45.3	52.3
020	48.8	55.8	48.4	55.4	47.0	54.0	46.3	53.3
021	60.8	67.8	56.4	63.4	58.0	65.0	55.8	62.8
022	53.3	60.3	51.9	58.9	51.0	58.0	51.3	58.3
023	46.8	53.8	45.4	52.4	44.5	51.5	45.3	52.3
024	52.3	59.3	55.4	62.4	53.5	60.5	53.8	60.8
025	53.8	60.8	49.9	56.9	47.5	54.5	48.3	55.3
026	54.8	61.8	55.4	62.4	53.5	60.5	54.8	61.8
027	58.3	65.3	54.4	61.4	53.0	60.0	52.3	59.3
028	52.8	59.8	52.9	59.9	52.0	59.0	53.8	60.8
029	62.8	69.8	61.4	68.4	61.5	68.5	> 64.8	> 71.8
030	52.8	59.8	51.4	58.4	51.0	58.0	50.3	57.3
031	57.8	64.8	59.4	66.4	55.5	62.5	54.3	61.3
032	48.8	55.8	49.9	56.9	51.0	58.0	52.8	59.8
033	> 68.8	> 75.8	> 66.4	> 73.4	> 67.5	> 74.5	> 66.8	> 73.8
034	55.8	62.8	59.4	66.4	59.0	66.0	54.8	61.8
035	63.3	70.3	62.9	69.9	62.0	69.0	59.3	66.3

NOTE: A "greater than" symbol (>) indicates rejection or D/U ratio is greater than the value to the right of the symbol.

* Test sample did not tune to this channel.

 Level exceeds "just perceptible" interference threshold.

TABLE 4.18
LOWER ADJACENT CHANNEL
AURAL CARRIER REJECTION
TEST RESULTS

VIDEO CASSETTE RECORDERS

SAMPLE NO.	CHANNEL 3		CHANNEL 12		CHANNEL 53		CHANNEL 74	
	REJ.	D/U	REJ.	D/U	REJ.	D/U	REJ.	D/U
101	54.3	61.3	51.9	58.9	53.0	60.0	52.8	59.8
102	47.3	54.3	46.4	53.4	45.5	52.5	44.8	51.8
103	44.8	51.8	43.9	50.9	45.5	52.5	44.8	51.8
104	50.8	57.8	48.4	55.4	50.0	57.0	49.8	56.8
105	50.8	57.8	50.4	57.4	51.0	58.0	51.8	58.8
106	47.8	54.8	46.4	53.4	46.0	53.0	44.8	51.8
107	51.8	58.8	52.9	59.9	52.0	59.0	45.8	52.8
108	46.8	53.8	45.4	52.4	44.5	51.5	44.8	51.8

 Level exceeds "just perceptible" interference threshold.

TABLE 4.19
LOWER ADJACENT CHANNEL
AURAL CARRIER REJECTION
TEST RESULTS

CABLE CONVERTERS

SAMPLE NO.	CHANNEL 3		CHANNEL 12		CHANNEL 53		CHANNEL 74	
	REJ.	D/U	REJ.	D/U	REJ.	D/U	REJ.	D/U
201	> 61.8	> 68.8	63.9	70.9	61.5	68.5	63.3	70.3
203	57.8	64.8	60.9	67.9	62.0	69.0	*	*
204	> 63.3	> 70.3	> 63.9	> 70.9	> 65.0	> 72.0	*	*
206	55.8	62.8	56.4	63.4	55.5	62.5	55.8	62.8
208	> 66.8	> 73.8	> 64.9	> 71.9	*	*	*	*
209	> 63.8	> 70.8	> 64.4	> 71.4	> 65.5	> 72.5	> 63.8	> 70.8
212	> 63.8	> 70.8	> 64.4	> 71.4	> 62.0	> 69.0	> 63.8	> 70.8
214	> 63.3	> 70.3	> 63.4	> 70.4	> 65.0	> 72.0	> 64.8	> 71.8
216	65.8	72.8	66.4	73.4	63.0	70.0	> 67.8	> 74.8
218	58.3	65.3	57.4	64.4	58.0	65.0	> 65.8	> 72.8
220	> 65.8	> 72.8	> 65.4	> 72.4	66.0	73.0	> 65.8	> 72.8
222	57.8	64.8	56.4	63.4	56.0	63.0	57.3	64.3
224	54.8	61.8	53.9	60.9	56.0	63.0	*	*

NOTE: A "greater than" symbol (>) indicates rejection or D/U ratio is greater than the value to the right of the symbol.

* Test sample did not tune to this channel.

Table 4.18 contains the test results for VCR's. Five out of the eight VCR's experienced interference levels greater than the "just perceptible" threshold when subjected to the maximum allowable lower adjacent aural carrier level. The average rejection was found to be 48.9 dB¹, or 8.7 dB lower than the average rejection for television receivers.

Test results for cable converters are presented in Table 4.19. None of the cable converters experienced interference levels above the "just perceptible" interference threshold when subjected to the maximum allowable lower adjacent aural carrier level. The resultant D/U ratios were all above 60 dB. Because the resultant baseband interference signal level was below the EUT noise floor, in a large percentage of the cable converters tested, no average rejection value is calculated.

4.5.6.3 Upper Adjacent Channel Video Carrier Test Results

Upper adjacent channel video carrier rejection tests were performed with the desired video carrier level set to +10 dBmV and the upper adjacent video carrier level set to +13 dBmV. The desired aural carrier was set to 0 dBmV. Tables 4.20, 4.21, and 4.22 present the test results for the upper adjacent channel video carrier rejection tests.

A review of all three Tables in this performance category indicates that only one television receiver exhibited interference levels greater than the "just perceptible" interference threshold when subjected to the maximum allowable upper adjacent video carrier level. The resultant baseband interference levels in most receivers tested were below the noise floor of the receiver.

4.5.7 Image Rejection Test Results

Image rejection tests were performed on the total sample population of 56 receivers in accordance with the test procedures contained in Section 4.4.8. The results are presented in a tabular format in Tables 4.23, 4.24, and 4.25 for television receivers, VCR's, and cable converters, respectively. The tables contain both the measured receiver image rejection and the resultant equivalent D/U signal ratio referenced to the receiver input.

¹The average rejection value may be understated due to the fact that in certain receivers, the resultant baseband interference signal was below the noise floor of the EUT. In this case, a rejection value corresponding to an interfering signal equal to the noise floor of the EUT was used in the calculation of the average rejection.

TABLE 4.20
UPPER ADJACENT CHANNEL
VIDEO CARRIER REJECTION
TEST RESULTS

TELEVISION RECEIVERS

SAMPLE NO.	CHANNEL 3		CHANNEL 12		CHANNEL 53		CHANNEL 74	
	REJ.	D/U	REJ.	D/U	REJ.	D/U	REJ.	D/U
001	71.2	68.2	71.8	68.8	> 68.9	> 65.9	> 61.3	> 58.3
002	73.2	70.2	68.3	65.3	71.7	68.7	72.3	69.3
003	> 78.0	> 75.0	> 77.5	> 74.5	> 77.5	> 74.5	> 77.3	> 74.3
004	> 77.2	> 74.2	> 71.8	> 68.8	> 81.3	> 78.3	*	*
005	> 75.7	> 72.7	> 70.8	> 67.8	> 69.4	> 66.4	> 69.8	> 66.8
006	> 79.2	> 76.2	> 79.0	> 76.0	> 76.9	> 73.9	> 76.3	> 73.3
007	> 78.2	> 75.2	75.8	72.8	> 78.4	> 75.4	> 72.8	> 69.8
008	> 79.2	> 76.2	> 78.3	> 75.3	> 80.9	> 77.9	79.8	76.8
009	> 78.7	> 75.7	> 75.8	> 72.8	> 74.4	> 71.4	> 74.3	> 71.3
010	> 76.0	> 73.0	> 74.0	> 71.0	> 75.9	> 72.9	> 73.0	> 70.0
011	> 76.7	> 73.7	76.8	73.8	76.4	73.4	> 76.3	> 73.3
012	73.2	70.2	70.8	67.8	69.4	66.4	69.8	66.8
013	50.7	47.7	60.8	57.8	63.9	60.9	53.3	50.3
014	> 80.2	> 77.2	> 78.8	> 75.8	> 75.4	> 72.4	> 76.3	> 73.3
015	> 75.2	> 72.2	> 79.8	> 76.8	> 75.9	> 72.9	> 74.3	> 71.3
016	> 75.2	> 72.2	> 77.3	> 74.3	> 73.9	> 70.9	> 75.3	> 72.3
017	> 73.7	> 70.7	> 73.8	> 70.8	> 68.4	> 65.4	> 70.8	> 67.8
018	77.7	74.7	76.3	73.3	> 78.4	> 75.4	75.8	72.8
019	> 80.2	> 77.2	> 78.3	> 75.3	> 77.9	> 74.9	> 78.3	> 75.3
020	> 79.2	> 76.2	> 77.8	> 74.8	> 78.4	> 75.4	> 76.3	> 73.3
021	67.2	64.2	71.8	68.8	70.9	67.9	65.8	62.8
022	> 79.2	> 76.2	> 79.3	> 76.3	> 77.9	> 74.9	> 78.3	> 75.3
023	75.2	72.2	> 77.3	> 74.3	> 72.4	> 69.4	> 73.3	> 70.3
024	> 76.2	> 73.2	78.3	75.3	> 77.4	> 74.4	> 76.3	> 73.3
025	75.2	72.2	71.8	68.8	74.9	71.9	> 72.8	> 69.8
026	> 77.7	> 74.7	73.8	70.8	> 75.4	> 72.4	> 74.3	> 71.3
027	> 77.7	> 74.7	> 76.8	> 73.8	> 78.9	> 75.9	> 76.3	> 73.3
028	> 75.2	> 72.2	> 78.3	> 75.3	> 75.9	> 72.9	> 76.3	> 73.3
029	> 74.2	> 71.2	> 75.1	> 72.1	> 71.9	> 68.9	> 74.3	> 71.3
030	> 78.7	> 75.7	> 79.8	> 76.8	> 78.9	> 75.9	> 79.8	> 76.8
031	> 80.2	> 77.2	> 78.3	> 75.3	> 78.9	> 75.9	> 78.8	> 75.8
032	> 76.2	> 73.2	> 74.3	> 71.3	> 77.9	> 74.9	> 77.3	> 74.3
033	> 78.2	> 75.2	> 76.8	> 73.8	> 74.9	> 71.9	> 75.3	> 72.3
034	> 77.2	> 74.2	> 77.8	> 74.8	> 75.9	> 72.9	73.3	70.3
035	> 73.2	> 70.2	> 74.3	> 71.3	> 77.9	> 74.9	> 75.3	> 72.3

NOTE: A "greater than" symbol (>) indicates rejection or D/U ratio is greater than the value to the right of the symbol.

* Test sample did not tune to this channel.

 Level exceeds "just perceptible" interference threshold.

TABLE 4.21
UPPER ADJACENT CHANNEL
VIDEO CARRIER REJECTION
TEST RESULTS

VIDEO CASSETTE RECORDERS

SAMPLE NO.	<u>CHANNEL 3</u>		<u>CHANNEL 12</u>		<u>CHANNEL 53</u>		<u>CHANNEL 74</u>	
	<u>REJ.</u>	<u>D/U</u>	<u>REJ.</u>	<u>D/U</u>	<u>REJ.</u>	<u>D/U</u>	<u>REJ.</u>	<u>D/U</u>
101	> 73.7	> 70.7	> 72.8	> 69.8	> 72.9	> 69.9	> 71.3	> 68.3
102	70.7	67.7	> 71.3	> 68.3	> 69.9	> 66.9	> 67.3	> 64.3
103	> 75.2	> 72.2	> 73.3	> 70.3	> 76.9	> 73.9	> 73.3	> 70.3
104	> 75.2	> 72.2	> 76.8	> 73.8	> 77.4	> 74.4	> 75.3	> 72.3
105	> 77.2	> 74.2	> 74.8	> 71.8	> 74.9	> 71.9	> 74.3	> 71.3
106	> 75.2	> 72.2	> 74.8	> 71.8	> 75.9	> 72.9	> 71.3	> 68.3
107	> 77.2	> 74.2	> 76.8	> 73.8	> 77.9	> 74.9	> 71.3	> 68.3
108	74.2	71.2	73.8	70.8	> 74.9	> 71.9	> 72.8	> 69.8

NOTE: A "greater than" symbol (>) indicates rejection or D/U ratio is greater than the value to the right of the symbol.

TABLE 4.22
UPPER ADJACENT CHANNEL
VIDEO CARRIER REJECTION
TEST RESULTS

CABLE CONVERTERS

SAMPLE NO.	<u>CHANNEL 3</u>		<u>CHANNEL 12</u>		<u>CHANNEL 53</u>		<u>CHANNEL 74</u>	
	<u>REJ.</u>	<u>D/U</u>	<u>REJ.</u>	<u>D/U</u>	<u>REJ.</u>	<u>D/U</u>	<u>REJ.</u>	<u>D/U</u>
201	> 71.2	> 68.2	> 74.3	> 71.3	> 72.4	> 69.4	> 73.8	> 70.8
203	> 73.7	> 70.7	> 76.8	> 73.8	78.4	75.4	*	*
204	> 75.7	> 72.7	> 74.8	> 71.8	> 75.9	> 72.9	*	*
206	> 65.2	> 62.2	> 68.8	> 65.8	> 70.9	> 67.9	> 70.3	> 67.3
208	> 76.2	> 73.2	> 75.3	> 72.3	*	*	*	*
209	72.2	69.2	71.8	68.8	74.4	71.4	71.3	68.3
212	> 75.7	> 72.7	> 73.3	> 70.3	> 72.9	> 69.9	> 71.3	> 68.3
214	> 73.7	> 70.7	> 72.3	> 69.3	> 75.9	> 72.9	> 74.8	> 71.8
216	> 79.2	> 76.2	> 76.8	> 73.8	> 79.9	> 76.9	> 77.3	> 74.3
218	> 63.6	> 60.6	> 72.8	> 69.8	> 74.9	> 71.9	> 71.8	> 68.8
220	69.2	66.2	> 75.3	> 72.3	> 76.9	> 73.9	> 74.3	> 71.3
222	> 73.2	> 70.2	> 73.8	> 70.8	> 73.9	> 70.9	> 74.3	> 71.3
224	> 71.7	> 68.7	> 72.3	> 69.3	> 69.9	> 66.9	*	*

NOTE: A "greater than" symbol (>) indicates rejection or D/U ratio is greater than the value to the right of the symbol.

* Test sample did not tune to this channel.

**TABLE 4.23
IMAGE REJECTION
TEST RESULTS**

TELEVISION RECEIVERS

SAMPLE NO.	CHANNEL 3		CHANNEL 12		CHANNEL 53		CHANNEL 74	
	REJ.	D/U	REJ.	D/U	REJ.	D/U	REJ.	D/U
001	> 84.1	> 71.1	75.5	62.5	63.1	50.1	60.6	47.6
002			78.5	65.5	72.1	59.1	67.6	54.6
003	> 85.1	> 72.1	78.5	65.5	87.1	74.1	66.0	55.0
004			73.5	60.5	57.1	44.1	*	*
005			64.5	51.5	69.1	56.1	62.1	49.1
006			76.5	63.5	76.1	63.1	83.6	70.6
007			71.5	58.5	75.1	62.1	64.1	51.1
008			74.0	61.0	73.1	60.1	64.6	51.6
009			62.5	49.5	62.6	49.6	76.6	63.6
010			68.5	55.5	72.1	59.1	69.6	56.6
011	> 84.1	> 71.1	78.5	65.5	70.6	57.6	69.1	56.1
012			69.0	56.0	72.1	59.1	63.6	50.6
013	> 85.6	> 72.6	81.5	68.5	71.6	58.6	78.6	65.6
014	> 82.6	> 69.6	73.0	60.0	71.1	58.1	76.1	63.1
015			77.9	64.9	74.1	61.1	81.6	68.6
016			73.5	60.5	63.6	50.6	66.1	53.1
017	> 83.1	> 70.1	> 82.5	> 69.5	> 79.1	> 66.1	67.6	54.6
018	> 86.6	> 73.6	67.5	54.5	78.6	65.6	77.6	64.6
019	> 86.1	> 73.1	66.0	53.0	76.6	63.6	70.1	57.1
020			83.0	70.0	62.6	49.6	56.7	45.7
021	> 86.1	> 73.1	77.2	64.2	71.1	58.1	59.6	46.6
022			74.0	61.0	49.1	36.1	58.2	45.2
023	> 85.1	> 72.1	74.5	61.5	69.6	56.6	65.1	52.1
024	> 84.6	> 71.6	> 85.5	> 72.5	> 83.6	> 70.6	> 84.6	> 71.6
025			71.5	58.5	49.1	36.1	58.1	45.1
026			66.0	53.0	71.1	58.1	67.6	54.6
027			72.5	59.5	47.6	34.6	55.1	42.1
028	> 84.1	> 71.1	68.5	55.5	74.1	61.1	82.6	69.6
029			77.6	64.6	60.1	47.1	61.6	48.6
030			65.5	52.5	56.1	43.1	51.6	38.6
031			68.5	55.5	58.6	45.6	55.6	42.6
032	> 82.1	> 69.1	69.0	56.0	50.1	37.1	53.6	40.6
033			72.5	59.5	> 81.1	> 68.1	74.6	61.6
034			75.5	62.5	> 85.1	> 72.1	64.6	51.6
035			78.5	65.5	56.6	43.6	> 78.6	> 65.6

NOTE: A "greater than" symbol (>) indicates rejection or D/U ratio is greater than the value to the right of the symbol.
* Test sample did not tune to this channel.

 Level exceeds "just perceptible" interference threshold.

TABLE 4.24
IMAGE REJECTION
TEST RESULTS

VIDEO CASSETTE RECORDERS

SAMPLE NO.	CHANNEL 3		CHANNEL 12		CHANNEL 53		CHANNEL 74	
	REJ.	D/U	REJ.	D/U	REJ.	D/U	REJ.	D/U
101	> 80.1	> 67.1	67.5	54.5	74.1	61.1	66.1	53.1
102	> 81.1	> 68.1	74.5	61.5	66.1	53.1	56.6	43.6
103		80.1	67.1	64.0	51.0	60.1	47.1	53.6
104	> 71.6	> 58.6	75.0	62.0	75.1	62.1	65.6	52.6
105		77.1	64.1	68.5	55.5	67.1	54.1	64.6
106		78.1	65.1	75.5	62.5	57.1	44.1	47.6
107	> 83.1	> 70.1	> 81.5	> 68.5	56.6	43.6	46.6	33.6
108	> 82.1	> 69.1	78.5	65.5	75.1	62.1	72.6	59.6

NOTE: A "greater than" symbol (>) indicates rejection or D/U ratio is greater than the value to the right of the symbol.

Level exceeds "just perceptible" interference threshold.

**TABLE 4.25
IMAGE REJECTION
TEST RESULTS**

CABLE CONVERTERS

SAMPLE NO.	CHANNEL 3		CHANNEL 12		CHANNEL 53		CHANNEL 74	
	REJ.	D/U	REJ.	D/U	REJ.	D/U	REJ.	D/U
201	80.1	67.1	83.0	70.0	83.1	70.1	60.1	47.1
203	> 75.1	> 62.1	76.5	63.5	77.1	64.1	*	*
204	> 81.6	> 68.6	> 82.0	> 69.0	> 84.1	> 71.1	*	*
206	75.1	62.1	70.0	57.0	61.1	48.1	58.1	45.1
208	> 80.1	> 67.1	> 77.5	> 64.5	*	*	*	*
209	> 79.6	> 66.6	> 82.5	> 69.5	> 82.1	> 69.1	> 81.5	> 68.5
212	> 83.6	> 70.6	79.5	66.5	84.6	71.6	> 82.6	> 69.6
214	> 81.1	> 68.1	> 84.0	> 71.0	> 84.1	> 71.1	> 83.1	> 70.1
215	> 82.1	> 69.1	> 83.5	> 70.5	> 84.6	> 71.6	> 82.6	> 69.6
216	> 79.1	> 66.1	> 78.5	> 65.5	> 79.1	> 66.1	> 78.6	> 65.6
218	83.1	70.1	82.5	69.5	83.1	70.1	> 82.6	> 69.6
220	> 83.1	> 70.1	> 83.5	> 70.5	> 83.1	> 70.1	#	#
222	> 81.1	> 68.1	> 79.5	> 66.5	> 82.1	> 69.1	> 79.1	> 66.1
224	> 80.1	> 67.1	> 81.5	> 68.5	> 72.1	> 59.1	*	*

NOTE: A "greater than" symbol (>) indicates rejection or D/U ratio is greater than the value to the right of the symbol.

* Indicates that the test sample did not tune to this channel.

VM 700A television measurement set would not lock on to video baseband signal when image carrier was present.

 Level exceeds "just perceptible" interference threshold.

As was the case in the previous section, the use of the "greater than" symbol (>) in the tables indicates that the rejection or D/U signal ratio is greater than the value to the right of the symbol. Shading is used in the tables to highlight receiver performance which results in "just perceptible" or greater interference in the received picture. A D/U signal ratio of 55 dB is assumed to be the "just perceptible" interference threshold.

The image rejection tests were performed with the desired video carrier level set to 0 dBmV and the image video carrier level set to +13 dBmV. The desired aural carrier level was set to -10 dBmV.

A review of Table 4.23 indicates that image rejection performance in television receivers is highly dependent on the selected channel. On channel 3, average rejection was found to be 82.4 dB¹, while on channel 74, the average image rejection was 72.2 dB¹. The variation in image rejection performance is more pronounced in the number of receivers which experienced "just perceptible" or greater interference. None of the television receivers exhibited interference levels greater than the "just perceptible" threshold on channel 3, and only six experienced interference greater than the threshold on channel 12. This number increased to thirteen receivers (37% of the test samples) on channel 53 and twenty-one receivers (60% of the test samples) on channel 74.

Eight of the receivers exhibited an interference level, on at least one channel, which was greater than 10 dB above the "just perceptible" interference threshold when subjected to the maximum allowable image carrier level. The worst performing television receiver experienced an interference level which was more than 20 dB above the "just perceptible" level.

Image rejection performance for VCR's is presented in Table 4.24. As was the case with television receivers, VCR performance in this category is highly dependant on the selected channel. The average image rejection on channel 3 was 79.7 dB¹, while the average rejection on channel 74 was 63.1 dB.

The number of test samples which experienced "just perceptible" or greater interference ranged from none on channel 3 to seven out of the eight receivers on channel 74. Four of the VCR's experienced interference levels greater than 10 dB above the "just perceptible" interference level. The worst performing VCR exhibited an interference level 21.4 dB above the "just perceptible" level.

¹The average rejection value may be understated due to the fact that in certain receivers, the resultant baseband interference signal was below the noise floor of the EUT. In this case, a rejection value corresponding to an interfering signal equal to the noise floor of the EUT was used in the calculation of the average rejection.

Image rejection performance for cable converters is presented in Table 4.25. Two of the thirteen cable converters exhibited image interference above the "just perceptible" interference threshold when subjected to the maximum allowable image carrier level. The worst performing cable converter exhibited an interference level 9.9 dB greater than the "just perceptible" level.

Because the resultant baseband interfering signal was below the EUT noise floor, in the majority of the test samples, an average rejection is not calculated. It can be stated, however, that image rejection is greater than 80 dB in the majority of the cable converters tested. The significantly better performance of cable converters in this category is largely due to the fact that double frequency conversion is employed in most, if not all, of the converters tested.

4.5.8 Tuner Overload Test Results

Tuner overload tests were performed on each of the 56 test samples in accordance with the test procedures contained in Section 4.4.9. The desired channel video carrier was set to a level of +15 dBmV, and the desired aural carrier was set to a level of +5 dBmV. The video carrier was modulated with a 10 IRE flat field modulation, and the aural carrier was unmodulated. The desired channel was offset downward in frequency by 80 kHz.

A Matrix generator was used to simulate other video carriers which are delivered by a cable system. All video carriers (between 54 and 550 MHz) were activated on the Matrix generator and input to the EUT, with the exception of the desired video carrier and the image video carrier. The simulated video carriers generated by the Matrix generator were unmodulated and set to a level of +15 dBmV.

The baseband video spectrum of the EUT was observed, using a Tektronix Model VM 700A television measurement set, to determine whether or not specific interfering signals were present, associated with Composite Triple Beat (CTB) products and Composite Second Order (CSO) products. An interfering signal resulting from CTB products will normally appear in the baseband spectral display at 0.0 MHz; however, because the desired channel is frequency offset, the actual frequency of the CTB interfering signal appears at .08 MHz. Similarly, CSO products at .75 MHz and 1.25 MHz appear at .83 MHz or 1.33 MHz in the baseband spectral display.

For each EUT, the spectrum at these three frequencies was observed to determine if a CTB or CSO interfering signal was present. If an interfering signal was present at these frequencies, the level of the interfering signal was measured and, using the signal substitution method, an equivalent in-band interfering signal

level at the input to the EUT was determined. In addition, all other interfering signals which were present in the baseband video spectrum were also measured in a similar manner.

The tuner overload test results are presented in a tabular format in Tables 4.26, 4.27, and 4.28 for television receivers, VCR's, and cable converters, respectively. The test results are presented in terms of an equivalent D/U signal ratio referenced to the input port of the EUT. For each test sample and each test channel, four equivalent D/U signal ratios are presented. The equivalent D/U ratios corresponding to CTB and CSO products are presented in the first three columns, and the equivalent D/U ratio corresponding to the highest other interfering signal observed in the baseband spectrum is presented in the last column. An asterisk (*) is used where the specific CTB or CSO interfering signal was below the noise floor of the EUT or where there were no other interfering signals which exceeded the noise floor of the EUT.

As was the case for adjacent channel and image interference, shading is used in the tables to highlight receiver performance which results in "just perceptible" or greater interference in the received picture. A D/U signal ratio of 55 dB, referenced to the input of the EUT, is assumed to be the "just perceptible" interference threshold.

4.5.8.1 Television Receiver Tuner Overload Test Results

Table 4.26 presents the tuner overload test results for television receivers. Twenty-three of the thirty-five television receivers exhibited interference at or above the "just perceptible" threshold level on at least one of the test channels and in at least one interfering category.

Thirteen television receivers exhibited CTB interference which was above the threshold level on at least one channel. Although there are more CTB products created on channels near the middle of the cable band, the number of receivers experiencing "just perceptible" or greater interference was greatest on the highest test channel. This might indicate that the selectivity of the RF filtering in some receivers is less on the higher channels, and/or that there exists greater nonlinearity in RF amplifier performance at the higher frequencies. The highest CTB interference level resulted in an equivalent D/U ratio of 41 dB at the input to the EUT or 14 dB above the "just perceptible" interference threshold.

Seventeen of the thirty-five television receivers exhibited CSO interference at levels equal to or greater than the "just perceptible" interference threshold on at least one test channel. The number of CSO products is greatest near the bottom and near the top of the cable band. This characteristic is demonstrated by the

TABLE 4.26
TUNER OVERLOAD
TEST RESULTS
CHANNELS 3 AND 12

TELEVISION RECEIVERS

SAMPLE NO.	CHANNEL 3 D/U SIGNAL RATIO				CHANNEL 12 D/U SIGNAL RATIO			
	CTB	CSO	CSO	HIGHEST	CTB	CSO	CSO	HIGHEST
	0.0	0.75	1.25	OTHER	0.0	0.75	1.25	OTHER
001	*	63.5	*	64.7	*	*	*	66.5
002	*	52.9	*	55.9	61.4	67.4	64.4	65.4
003	*	68.5	*	64.5	*	*	*	*
004	*	66.5	*	68.0	61.5	*	70.5	69.5
005	*	65.0	*	65.5	59.5	*	*	60.5
006	72.5	62.0	*	58.5	66.0	*	72.0	61.5
007	*	66.0	*	68.0	65.5	71.5	*	70.0
008	71.5	61.0	*	66.5	67.0	*	*	*
009	*	68.5	*	70.0	59.5	*	*	*
010	*	69.0	*	72.5	58.5	*	*	*
011	67.0	67.0	*	69.5	59.5	*	*	69.0
012	69.5	56.5	*	59.0	54.0	68.5	62.5	54.0
013	*	56.7	*	42.7	63.2	*	69.7	52.2
014	67.0	54.0	*	62.0	58.5	62.5	72.0	56.5
015	*	58.0	78.5	62.5	60.0	71.0	65.5	68.5
016	*	65.5	*	70.0	*	71.5	71.5	63.0
017	*	58.0	72.0	64.5	*	*	*	68.0
018	*	68.0	*	67.0	69.5	*	*	70.0
019	*	69.5	*	70.0	69.5	*	*	*
020	*	54.5	*	58.5	62.0	72.0	65.0	68.5
021	*	59.5	57.5	40.0	77.1	*	69.0	50.5
022	*	55.5	*	58.5	64.0	71.5	68.5	67.0
023	*	60.5	*	66.0	*	73.0	*	68.0
024	*	85.4	*	88.5	69.5	*	70.0	69.5
025	67.0	49.0	*	55.5	56.0	69.0	67.5	62.0
026	*	65.0	*	61.5	64.0	*	71.0	63.5
027	*	56.0	*	61.5	65.0	70.5	68.5	68.5
028	*	70.0	*	69.5	*	*	72.0	63.5
029	*	63.5	*	66.5	67.0	68.0	69.5	*
030	*	69.5	*	72.0	62.0	66.0	64.5	70.5
031	72.0	69.0	*	69.5	65.0	66.0	65.5	70.0
032	*	71.0	*	71.0	69.5	69.5	*	70.0
033	*	67.0	*	69.5	64.0	68.0	64.5	70.5
034	70.5	64.0	*	66.5	60.5	64.5	63.5	65.5
035	*	64.0	*	66.5	65.0	*	68.0	65.5

* Baseband interfering signal is below the noise floor of the test sample.

Level exceeds "just perceptible" interference threshold.

TABLE 4.26 (cont'd)
TUNER OVERLOAD
TEST RESULTS
CHANNELS 53 AND 74

TELEVISION RECEIVERS

SAMPLE NO.	CHANNEL 53 D/U SIGNAL RATIO				CHANNEL 74 D/U SIGNAL RATIO			
	CTB 0.0	CSO 0.75	CSO HIGHEST 1.25	OTHER	CTB 0.0	CSO 0.75	CSO HIGHEST 1.25	OTHER
001	*	*	55.0	62.5	*	*	*	63.0
002	48.5	*	*	60.0	50.5	*	*	59.5
003	66.5	*	61.5	69.5	65.0	*	60.0	69.0
004	59.5	75.0	65.0	70.5	*	*	*	*
005	61.0	*	54.0	62.0	*	*	*	64.0
006	60.5	*	66.0	67.0	55.0	*	47.0	68.0
007	63.5	*	*	68.0	68.0	*	*	70.0
008	63.0	*	*	67.0	69.5	*	*	66.0
009	63.5	*	64.5	61.0	*	*	*	70.5
010	*	*	70.5	61.5	*	*	*	69.5
011	56.0	*	71.0	61.0	65.5	*	71.0	57.0
012	55.5	*	*	58.5	62.5	*	67.5	60.5
013	55.2	*	44.2	47.7	52.7	71.7	51.7	46.2
014	55.0	64.0	42.5	62.5	56.0	*	48.5	55.5
015	62.0	*	59.0	68.0	58.5	*	55.0	65.0
016	53.0	*	67.5	*	56.5	*	51.0	*
017	*	*	57.0	*	59.5	*	57.0	*
018	49.5	*	*	70.0	52.5	*	45.5	63.5
019	46.0	*	*	65.0	49.5	*	50.0	59.5
020	*	*	*	*	*	*	*	*
021	53.5	*	46.5	48.5	51.0	*	50.5	48.0
022	58.5	72.5	54.5	67.5	56.0	*	42.5	67.5
023	69.5	*	53.0	*	64.5	*	55.5	66.5
024	61.0	*	*	56.5	65.5	*	61.5	56.0
025	56.5	70.5	54.5	58.5	55.0	*	42.5	60.0
026	64.5	*	*	69.5	66.5	*	56.0	51.5
027	56.5	*	57.0	66.0	56.0	*	43.5	67.5
028	62.5	*	*	60.0	67.0	*	57.0	56.5
029	54.5	*	*	59.5	61.0	*	69.5	58.0
030	41.0	*	60.0	57.5	51.5	*	60.0	67.0
031	44.0	*	63.0	61.5	53.0	*	55.5	65.0
032	63.5	72.5	63.0	56.0	46.0	*	69.0	52.0
033	66.0	*	63.0	*	66.0	*	59.0	57.0
034	64.0	*	59.0	66.0	57.5	*	54.0	63.0
035	67.5	*	61.5	65.5	67.0	73.0	61.5	57.5

* Baseband interfering signal is below the noise floor of the test sample.

Level exceeds "just perceptible" interference threshold.

TABLE 4.27
TUNER OVERLOAD
TEST RESULTS
CHANNELS 3 AND 12

VIDEO CASSETTE RECORDERS

SAMPLE NO.	CHANNEL 3 D/U SIGNAL RATIO				CHANNEL 12 D/U SIGNAL RATIO			
	CTB 0.0	CSO 0.75	CSO HIGHEST 1.25	OTHER	CTB 0.0	CSO 0.75	CSO HIGHEST 1.25	OTHER
101	*	61.5	*	66.5	*	*	*	*
102	90.2	79.7	*	76.8	63.0	71.0	68.0	64.0
103	*	80.1	*	87.1	*	*	*	*
104	92.9	79.6	*	83.5	63.0	70.0	71.0	70.0
105	*	77.9	*	84.5	64.0	*	*	64.5
106	69.5	67.5	93.7	71.5	69.0	*	70.0	70.0
107	92.3	86.9	*	88.7	69.0	74.0	73.0	70.0
108	84.8	81.6	*	85.6	65.0	71.0	71.0	64.0

* Baseband interfering signal is below the noise floor of the test sample.


 Level exceeds "just perceptible" interference threshold.

TABLE 4.27 (cont'd)
TUNER OVERLOAD
TEST RESULTS
CHANNELS 53 AND 74

VIDEO CASSETTE RECORDERS

SAMPLE NO.	CHANNEL 53 D/U SIGNAL RATIO				CHANNEL 74 D/U SIGNAL RATIO			
	CTB 0.0	CSO 0.75	CSO 1.25	HIGHEST OTHER	CTB 0.0	CSO 0.75	CSO 1.25	HIGHEST OTHER
101	60.5	*	69.5	60.5	61.0	*	70.0	70.0
102	51.5	*	72.5	55.5	42.0	*	67.0	53.0
103	56.5	*	*	*	57.0	*	50.0	*
104	63.5	*	72.5	62.5	67.0	*	74.0	66.0
105	57.0	*	71.5	65.0	60.0	*	53.0	71.5
106	64.5	*	64.5	68.5	73.0	*	61.0	*
107	65.5	*	63.5	71.5	61.0	*	57.0	68.0
108	55.5	*	65.5	61.5	57.0	*	43.0	64.0

* Baseband interfering signal is below the noise floor of the test sample.

Level exceeds "just perceptible" interference threshold.

TABLE 4.28
TUNER OVERLOAD
TEST RESULTS
CHANNELS 3 AND 12

CABLE CONVERTERS

SAMPLE NO.	CHANNEL 3 D/U SIGNAL RATIO				CHANNEL 12 D/U SIGNAL RATIO			
	CTB 0.0	CSO 0.75	CSO HIGHEST 1.25	OTHER	CTB 0.0	CSO 0.75	CSO HIGHEST 1.25	OTHER
201	56.5	*	*	58.5	*	*	*	61.5
203	*	69.0	*	70.5	65.0	*	*	64.0
204	68.5	68.5	*	63.0	*	69.5	62.5	70.0
206	*	*	*	62.5	*	*	*	*
208	70.0	*	*	57.5	*	70.5	65.5	60.5
209	*	*	*	63.0	*	*	*	64.5
212	*	*	*	61.0	*	*	*	62.0
214	*	64.5	*	58.0	*	*	62.5	64.0
215	55.5	*	53.0	*	*	*	64.5	64.5
216	*	66.0	*	73.5	71.5	66.5	62.5	73.5
218	*	*	*	61.5	*	*	*	63.5
220	*	67.0	*	67.5	*	*	67.0	66.5
222	*	67.5	*	*	65.5	67.5	65.0	*
224	68.0	68.0	*	62.0	48.0	65.0	51.5	58.5

* Baseband interfering signal is below the noise floor of the test sample.

Level exceeds "just perceptible" interference threshold.

TABLE 4.28 (cont'd)
TUNER OVERLOAD
TEST RESULTS
CHANNELS 53 AND 74

CABLE CONVERTERS

SAMPLE NO.	CHANNEL 53 D/U SIGNAL RATIO				CHANNEL 74 D/U SIGNAL RATIO			
	CTB 0.0	CSO 0.75	CSO HIGHEST 1.25	OTHER	CTB 0.0	CSO 0.75	CSO HIGHEST 1.25	OTHER
201	*	*	*	*	*	*	*	62.0
203	*	66.5	65.5	*	#	#	#	#
204	92.3	89.7	83.9	85.7	#	#	#	#
206	*	*	60.0	51.5	*	*	*	49.0
208	#	#	#	#	#	#	#	#
209	*	*	*	63.0	*	*	66.5	63.5
212	*	*	*	62.5	*	*	*	62.5
214	*	67.0	60.0	63.5	*	*	63.5	58.0
215	*	*	85.5	79.4	*	*	60.5	54.5
216	94.0	92.7	85.3	95.5	70.5	*	59.0	72.5
218	*	*	66.5	62.5	*	*	65.5	68.0
220	67.5	*	64.5	68.5	68.0	*	60.5	*
222	*	*	57.5	*	65.0	*	57.5	*
224	41.5	59.0	44.5	60.5	#	#	#	#

* Baseband interfering signal is below the noise floor of the test sample.

Cable Converter did not tune to this channel.

Level exceeds "just perceptible" interference threshold.

number of receivers experiencing CSO interference at or above the "just perceptible" threshold on the highest and lowest test channels, compared with the number experiencing interference on the two middle test channels. As was the case with CTB interference, it also appears that CSO tuner overload performance degrades at higher frequencies.

CSO products near the bottom of the cable band represent the difference in two carrier frequencies and appear at 0.75 MHz in the baseband spectrum, while CSO products near the top of the cable band represent the sum of two carrier frequencies and appear at 1.25 MHz in the baseband spectral display. This characteristic is evidenced in the table by comparing the number of measurable CSO products in each CSO column (0.75 and 1.25 MHz) for test channels 3 and 74. The highest CSO interference level resulted in an equivalent D/U ratio of 42.5 dB at the input to the EUT or 12.5 dB above the "just perceptible" interference threshold. Three receivers exhibited this degree of interference on at least one channel.

The majority of receivers exhibited one or more other interfering signals in the baseband spectrum as a result of nonlinear mixing of input and internal signals. Six of the receivers exhibited other interfering signals at levels which exceeded the "just perceptible" interference threshold on at least one channel. Interference levels in two of these receivers exceeded the "just perceptible" threshold level on all four channels. The highest interference level in this category resulted in an equivalent D/U ratio of 40 dB, or 15 dB greater than the "just perceptible" interference threshold.

4.5.8.2 VCR Tuner Overload Test Results

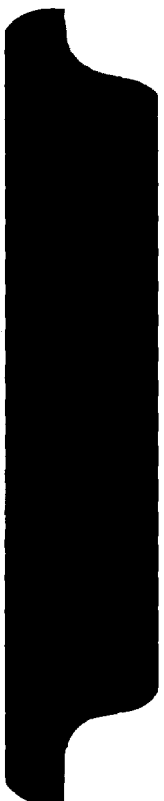
VCR tuner overload test results are presented in Table 4.27. On test channels 3 and 12, none of the eight VCR's tested experienced interference greater than the "just perceptible" threshold in any of the four categories. One VCR experienced CTB interference at levels greater than the threshold on channels 53 and 74, and three VCR's exhibited CSO interference levels greater than the "just perceptible" interference threshold on channel 74 only.

Although the majority of VCR's exhibited one or more other interfering signals in the baseband spectrum, as a result of nonlinear mixing of input and/or internal signals, in only one case was the level greater than the "just perceptible" threshold level.

The highest interfering level observed for the eight VCR's resulted in a D/U ratio of 42 dB which is 13 dB above the "just perceptible" threshold level.

4.5.8.3 Cable Converter Tuner Overload Test Results

Tuner overload test results for cable converters are presented in Table 4.28. Three of the thirteen cable converters experienced interference above the "just perceptible" interference threshold on at least one of the test channels. Cable converter No. 224 exhibited the highest levels of interference, experiencing both CTB and CSO interference on channels 12 and 53. The highest interference level for cable converters resulted in an equivalent D/U ratio of 41.5 dB or 14.5 dB above the "just perceptible" interference threshold.



5.0 Perceptibility Measurements